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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/893,677
Filing Date: June 29, 2001
Appellant(s): TOMIOKA ET AL.

Thomas Brown
Reg. No. 44,450
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 3/27/07 appealing from the Office action mailed 7/31/06.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,588,948	Takahashi et al	12-1996
5,902,232	Igarashi	5-1999

5,954,634 Igarashi 9-1999

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 1 and 3-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Igarashi (US 5,902,232) in view of Takahashi et al. (US 5,588,948).

As best understood by the examiner, as for Claim's 1, 17, and 19, Igarashi (US 5,902,232) teaches a non-flexible endoscope for front-end insertion and a camera head that includes an objective optical system, a relay optical system, an imaging optical system and a solid-state image pickup device. Igarashi (US 5,902,232) also teaches the front-end insertion section with a camera head being able to be detached and replaceable in the region on the relay optical system (Igarashi: Column 8, lines 13-67; see also Figures 3 and 12). Igarashi further teaches the relayed image is in the camera head and a field mask is disposed at or near the position of the relayed image (Igarashi: column 23, lines 38-49, wherein the field mask is the visual field mask, the camera head is the optical system). Igarashi also teaches that the relayed image is formed between the relay optical system and the imaging optical system (Igarashi: figure 2 and column 10, lines 10-12).

Igarashi (US 5,902,232) fails to specifically teach where the camera head includes a part of the relay optical system, Takahashi et al. does (Takahashi: Figure 1). Takahashi further discloses the front end insertion section includes the objective optical system, a remaining part of the relay system, and the

imaging optical system (Takahashi: figures 1-2). Since the relay optical system can be put together in many different methods including the method used in Igarashi (US 5,902,232), it would have been obvious to one of ordinary skill to, as long as the method included a camera head and relay optical lens system, include the relay optical system with the camera head in any order or method to use the same relay optical system and be able to remove a front-end insertion section.

As for Claim's 6, 10 and 11, Igarashi (US 5,902,232) teaches a non-flexible endoscope with a camera head including a visual field mask that is constructed to be moved in a focusing operation within part of the relay optical system. Igarashi (US 5,902,232) also teaches that this field mask can be placed in either the rear lens component or the front lens component. If at the front lens component it would be able to be placed at the front focal point of the front lens component (Igarashi: Column 16, lines 28-33 and 60-63; Column 23, lines 38-49).

As for Claim's 9 and 14, Igarashi (US 5,902,232) teaches an optical system consisting of a single negative lens and a single positive lens. Igarashi (US 5,902,232) also teaches adding an additional negative or positive power to the lens. He also teaches that it would be alright to use a cemented lens component for the intended correction as well (Igarashi: Column 43, lines 22-33).

As for Claim 15, Igarashi (US 5,902,232) teaches an effective diameter of the lens element to be 7.4 mm which shows that the outer diameter of the front-end insertion section must be at least 6 mm (Igarashi: Column 48, Embodiment 24, line 52).

As for Claim 18, Igarashi (US 5,902,232) teaches the rays nearly being in parallel with one another between the front-end insertion section and the image pickup device (Igarashi: Column 18, lines 20-27).

As for Claim's 3-5, 7, 8, 12, 13 and 16, many of the limitations are stated in the above rejections. Although Igarashi (US 5,902,232) fails to teach the position of the view field mask and the imaging senor being moved vertically with respect to the optical axis to allow focusing on the center of the image, Takahashi et al. does (Takahashi: Column 2, lines 42-55; Column 5, lines 46-55). Takahashi shows both the view field mask and the imaging sensor moving along the vertical axis. He also shows that they can rotate with respect to the camera head. Since it is well known that moving the view field mask or imaging sensor along the vertical axis will re-center the image according to where the view field mask or imaging sensor is on the respective vertical axis it would have been obvious to one of ordinary skill to center the image by moving the view field mask or imaging sensor vertically.

2. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Igarashi (US 5,902,232) in view of Takahashi et al. (US 5,588,948) and in further view of Igarashi (US 5,954,634).

Igarashi (US 5,902,232) teaches the movements of a visual field mask and the imaging optical system for a focusing operation, but he fails to teach the movements of the imaging sensor. Although Igarashi (US 5,902,232) and Takahashi et al. (US 5,588,948) fail to teach this, Igarashi (US 5,954,634) does (Igarashi: Column 4, lines 57-67). Since the difference between integrating the imaging sensor with the movements of the visual field mask and the optical system could just be the difference of focusing or magnification it would have been obvious to one of ordinary skill that the separate or integrated imaging sensor would achieve the same results.

(10) Response to Argument

i. On page 7, appellant argues that Igarashi and Takahashi fail to disclose wherein the camera head includes part of said relay optical system, said imaging optical system, and said solid state image sensor.

Takahashi discloses in figure 1 an endoscope comprising two sections. Takahashi discloses in column 4, lines 8-12, the two sections being the insertion section and the operating/holding or camera head section. Takahashi further discloses in column 4, lines 40-60 that the operating/holding section or camera head section comprises two CCD's or solid state image sensors and the system of mirrors and prisms making up the imaging optical system. Further, as seen in figure 1, the endoscope system comprises a set of three lenses 6, two being in the inserting section and one being in the camera head. Takahashi discloses in column 4, lines 14-16, these lenses 6 as being the relay lens section. Hence,

since a single lens of the relay lens section is in the camera head, the camera head or operating/holding section comprises part of a relay optical system. Therefore Takahashi discloses wherein the camera head includes part of said relay optical system, said imaging optical system, and said solid state image sensor.

ii. On page 7, appellant argues that Takahashi fails to disclose wherein said front-end insertion section includes the objective optical system and a remaining part of the relay optical system.

Takahashi illustrates in figure 1 an objective lens system 5 and a relay lens section 6. Takahashi discloses in column 4, lines 61-65 that the objective lens system or objective optical system comprises a plurality of lenses. Takahashi discloses in column 4, lines 14-16, the relay lenses 6 as being the relay lens section. Hence, since the remaining two lenses of the relay lens section is in the insertion section, the front-end insertion section includes the remaining part of the relay optical system. Therefore Takahashi discloses wherein said front-end insertion section includes the objective optical system and a remaining part of the relay optical system.

iii. On page 8, appellant argues that Takahashi fails to disclose the relayed image is formed between the relay optical system and the imaging optical system in the camera head.

Takahashi discloses in column 4, lines 39-49, the steps for forming the image in the camera head. The relay lens system transmits the image to the

pupil dividing prism which in turn transmits the images through an image forming lens (9a and 9b) and then reflected by a mirror (10a and 10b). The mirror then reflects the image onto a CCD (11a and 11b). Therefore Takahashi discloses the relayed image is formed between the relay optical system and the imaging optical system, the imaging optical system comprising the system of mirrors, prism, and CCD's, in the camera head.

iv. On page 8, appellant argues that the Examiner has failed to provide proper motivation for combining Igarashi and Takahashi.

Igarashi discloses in column 1, lines 9-11, an endoscope to be used in the medical field. Takahashi teaches in column 2, lines 33-39, that when using prior art endoscopes, the operator cannot immediately understand the positional relationship between the scope and body cavity making it difficult to set the treating instrument quickly and correctly. Therefore, the proposed combination of Igarashi and Takahashi would eliminate this prior art problem. Further, since both references are within the same field of endeavor and contain similar subject matter, the combination is deemed proper.

v. On page 10, appellant argues that Igarashi fails to disclose wherein said camera head includes a view field mask, wherein said field mask, imaging optical system, and solid state image sensor are constructed to be integrally moved along the optical axis in a focusing operation.

Igarashi '232 discloses in column 23, lines 38-49, a visual field mask is used for clarifying a range of a visual field to be observed. Igarashi '232 further

discloses in column 16, lines 57-67, moving the imaging optical system along an optical axis. Igarashi '634 discloses in column 4, lines 52-67, moving the image sensor. Therefore the combination of Igarashi '232, Takahashi, and Igarashi '634, taken as a whole, teach the limitations as claimed.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

(12) Evidence Appendix

No evidence has been submitted.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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